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## EXPERIMENTAL COLLECTION OF DIFFERENT POPLAR VARIETIES AT KÓRNIK

(Kolekcja doświadczalna różnych odmian topoli w Kórniku)

The collection of poplars of the Kórnik Arboretum was started in 1924–1930, at the time when these trees did not represent so great an economic value as nowadays. First poplars were planted singly in the Arboretum, and also in rows along fences and ditches of the nurseries. After the war (1947–1953) the significance of poplar largely increased. The Kórnik collection of this species became much more abundant. New hybrids and varieties were obtained from several foreign scientific centers interested in poplars. There arose a necessity of establishing a new collection of poplar on a specially chosen area. In 1952–1954, a collection of poplar varieties was actually planted on a 3-hectare area. The trees were spaced 6 by 3 m. Some 100 species and varieties were brought together in this case. In the subsequent years the interest in poplars rapidly grew in Poland and specimens were continually added to the collection, which now comprised hybrids and varieties both of a local origin and from abroad (Holland, Italy, the USSR, Hungary, Germany, Czechoslovakia etc.). Very soon the area destined for the collection of poplars proved insufficient. Moreover, experimental requirements made it necessary to provide for an appropriate layout of the plantings. It is a matter of replications and of arranging different varieties and hybrids in groups. To satisfy these demands large areas of post-agricultural land situated within the forest experimental station Zwierzyniec, on the western bank of the Kórnik Lake, have been destined for this purpose.

The first group of poplars was planted on a 2.2 hectare area in spring 1967. During successive years further sections of the collection are to be planted out. In all, the area of post-agricultural land under the collection is to work out at 12 hectares.

The present brief announcement is intended to cover general data on the experimental collection of poplars planted in spring 1967, as well as its documentation.

Thirty six varieties (clones) of poplar made up the new collection. On the whole it comprised plant material absent in the collection established in 1952–1954 and little investigated in respect of its behavior in Polish climatic conditions. The main points of interest are: hardiness, resistance to diseases and to insect pests, and growth rate.

The 36 varieties of the collection included Italian and German hybrids (so-called Altstammsorten), assigned to four experimental groups:

#### Group I

1.	<i>Populus</i>	'J — 78B' <sup>1</sup>	stock-list No.	11307
2.	"	'I — 274'	" "	<b>11317</b>
3.	"	'I — 214'	" "	11246
4.	"	'I — 214'	" "	11204
5.	"	'I — 455'	" "	11318
6.	"	'I — 155'	" "	11315
7.	"	'I — 262'	" "	11245
8.	"	'I — 154'	" "	11247
9.	"	'J — 30A'	" "	11308

#### Group II

10.	<i>Populus</i>	'Bietigham'	stock-list No.	11314
11.	"	'Neupotz'	" "	11208
12.	"	'Flachslanden'	" "	11300
13.	"	'Steckby'	" "	11301
14.	"	'Lingenfeld'	" "	11312
15.	"	'Forndorf'	" "	11201
16.	"	'Leipzig'	" "	11303
17.	"	'Löns'	" "	10005
18.	"	'Grandis'	" "	11212

#### Group III

19.	<i>Populus</i>	'Dolomiten'	stock-list No.	11311
20.	"	'Löns'	" "	11302
21.	"	'Eckhof'	" "	11306
22.	"	'Harff'	" "	11198
23.	"	'Zürich'	" "	11313
24.	"	'Allenstein'	" "	11310
25.	"	'Forndorf Krajenka'	" "	11296
26.	"	'Robusta'	" "	11203
27.	"	'Grandis'	" "	11248

<sup>1</sup>Jacometti — name of the Italian poplar breeder.

<sup>2</sup>Italy — symbol assumed for hybrids of Italian origin.



Group IV

28. <i>Populus</i> 'Virginiana de Frignicourt stock-list No. 11299			
29.	" 'Serotina de Poitou'	"	" 11309
30.	" 'Serotina de Champagne'	"	" 11305
31.	" 'Regénéré de Suisse'	"	" 11298
32.	" 'Robusta'	"	" 3395
33.	" 'Marilandica'	"	" 3048
34.	" 'Hybr. 275'	"	" 7828
35.	" 'Heidemij'	"	" 11304
36.	" 'Gelrica'	"	" 8310

Every poplar variety is planted in 4 replications, 4 plants per plot, thus being represented in the collection by 16 specimens. A diagrammatic illustration is given in Fig. 1.

The poplars were planted as one-year-old, rooted cuttings obtained in 1966. The cuttings originated from the transplant nursery of the Kórnik Arboretum. Planting was performed between the 8th and 14th April, 1967.

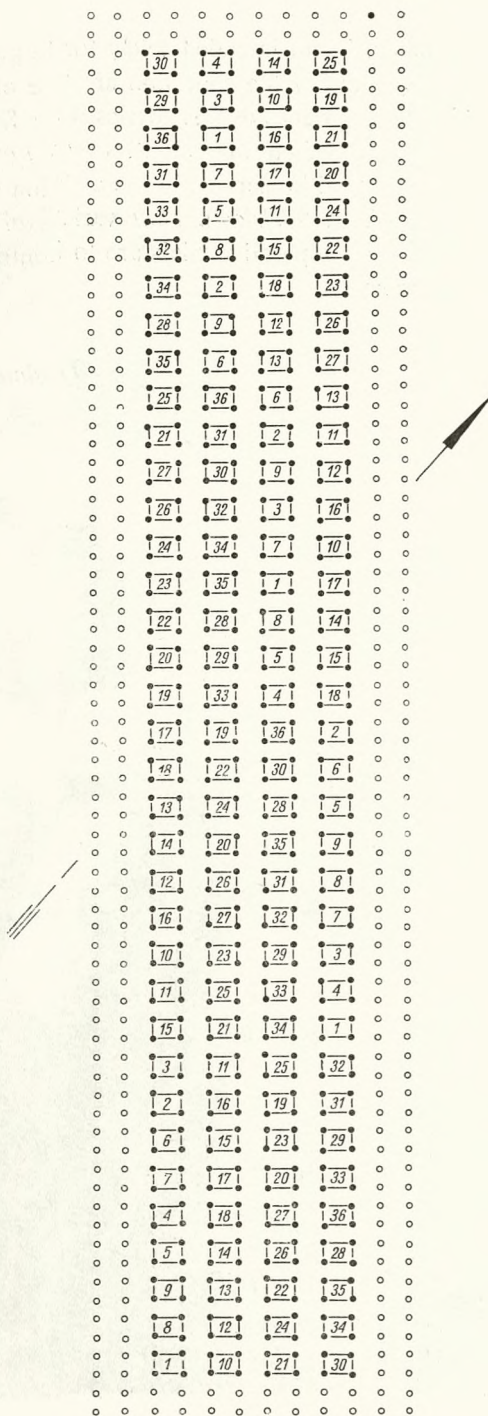
Land for the collection was taken over from the State Land Fund, as a post-agricultural area with a 4a soil class. In spring of 1966 the land was plowed and planted with lupine for betterment of the soil. The lupine stand was plowed under in the fall of 1966. Early in the spring of 1967 the soil was dressed with calcium, 3 t to 1 hectare. After treatment the soil was loosened with a disc harrow and fertilized with potash salt (40%), 400 kg per hectare; and granulated superphosphate, 350 kg per hectare.

After broadcasting of the artificial fertilizers the surface of the soil was harrowed and prepared for planting at 6 by 4 m spacing. The poplar cuttings were planted into hand-prepared pits 50 cm deep, at a level 25 to 30 cm deeper than that in the nursery.

Soon after a leguminous plant mixture (serradella and lupine) was sown in rows between the poplar plantings for green manure. Top dressing comprised nitro-chalk, 30%, 150 kg per hectare.

In August, the stripes between poplar cuttings and the intercrop were hoed to destroy the weeds. The green crop was plowed down in the fall of 1967.

It is planned to cultivate mixtures of legumes for the first three or four years as intercrops, returned in the fall for green manuring. Moreover, full, supplementing mineral dressings will be applied every year. After a period of some three to four years during which the young poplars will have developed to shade the soil sufficiently to reduce intercrop lushness, there will be introduced black fallow, disc-harrowed a few times during the growing season.



○ *Populus 'Gelrica'*

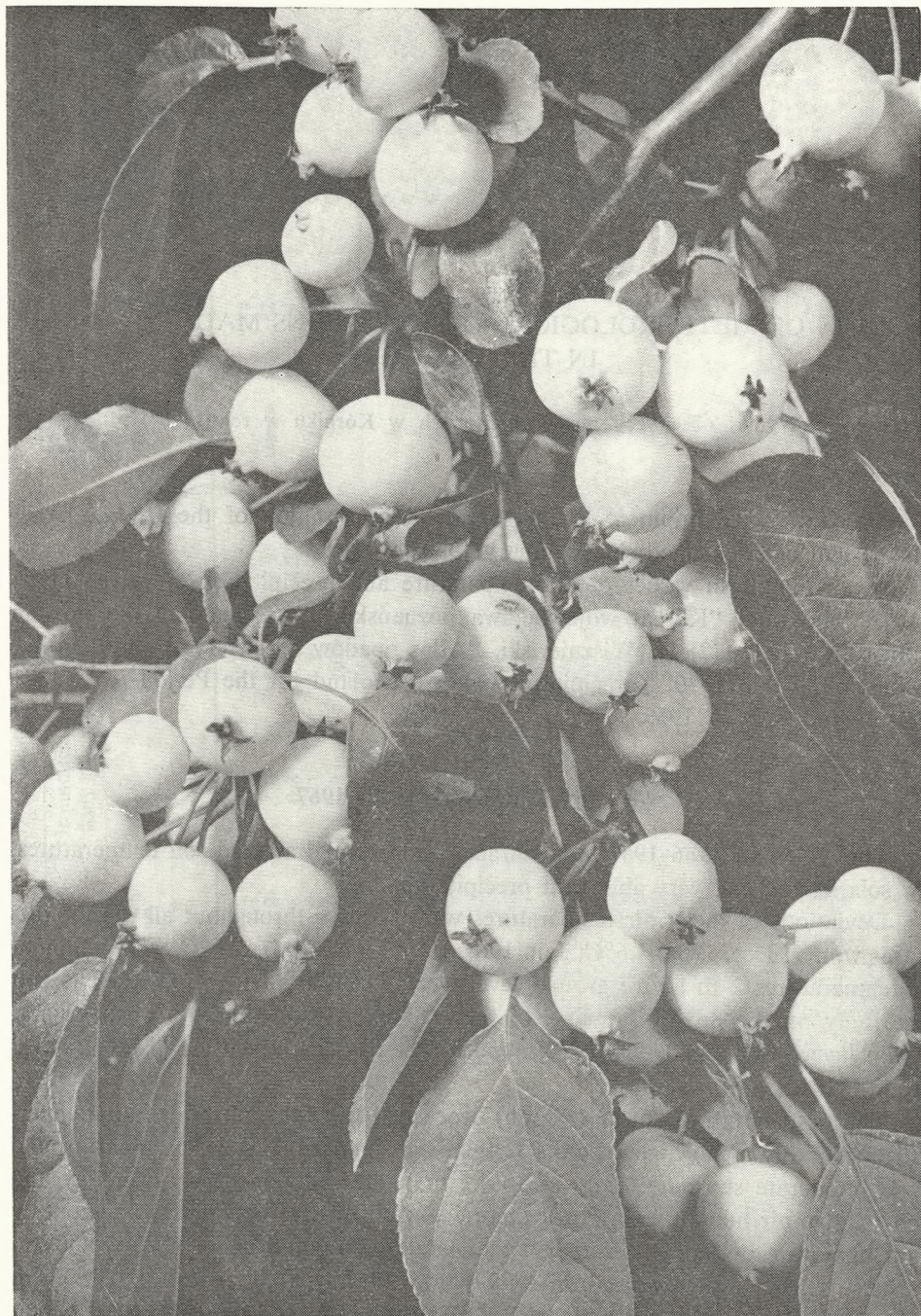
● *Poplar varieties used for experiment (figures correspond to numbers of varieties given in the test)*

Fig. 1. Situation plan of the experimental collection of poplar varieties

The experimental collection is not intended solely for the purpose of bringing together the plant material. Poplars of the collection are to be experimented upon with the aim of establishing new varieties of this species. In the first place, in a few years' time, it will be possible to evaluate the varieties by way of comparing them with poplar varieties of known qualities serving in the collection as standard forms (*P. 'Robusta'*, *P. 'Marilandica'*, *P. 'Gelrica'*). New varieties of poplar set apart on grounds of these preliminary comparative trials are to be introduced into more extensive comparative experiments.

*Translated by H. Massey*





Fruits of toringo crab apple tree (*Malus sieboldii* Rehd.) at the Kórnik Arboretum. Photo by K. Jakusz.